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# (54) Tamperproof enclosure

(57) A two-part cage-like enclosure for fitting onto a container e.g. for medical pills includes a first part having arrowhead-like detents 10 which engage non-releasably in holes 6 in a second part so that, once engaged, the two parts cannot be seprated without breaking the detents 10. Both parts of the cage are moulded in a synthetic resin such as medium-impact polystyrene, which is preferably coloured other than white so that tampering may be revealed by characteristic whitening of the stressed area even when breaking has not occurred.

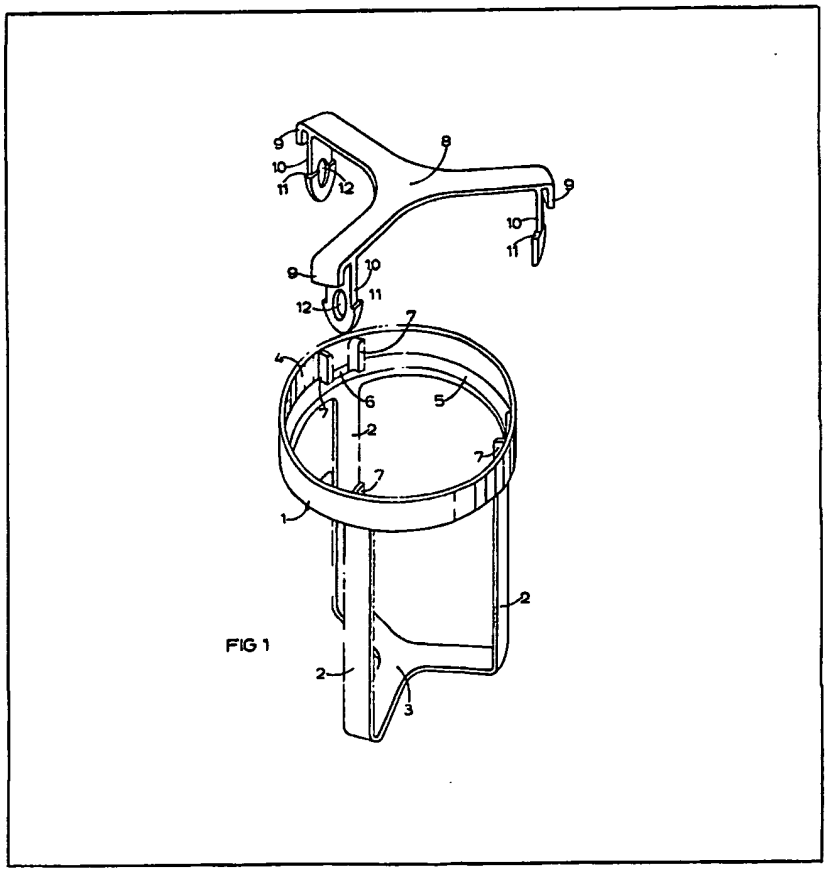


FIG 1

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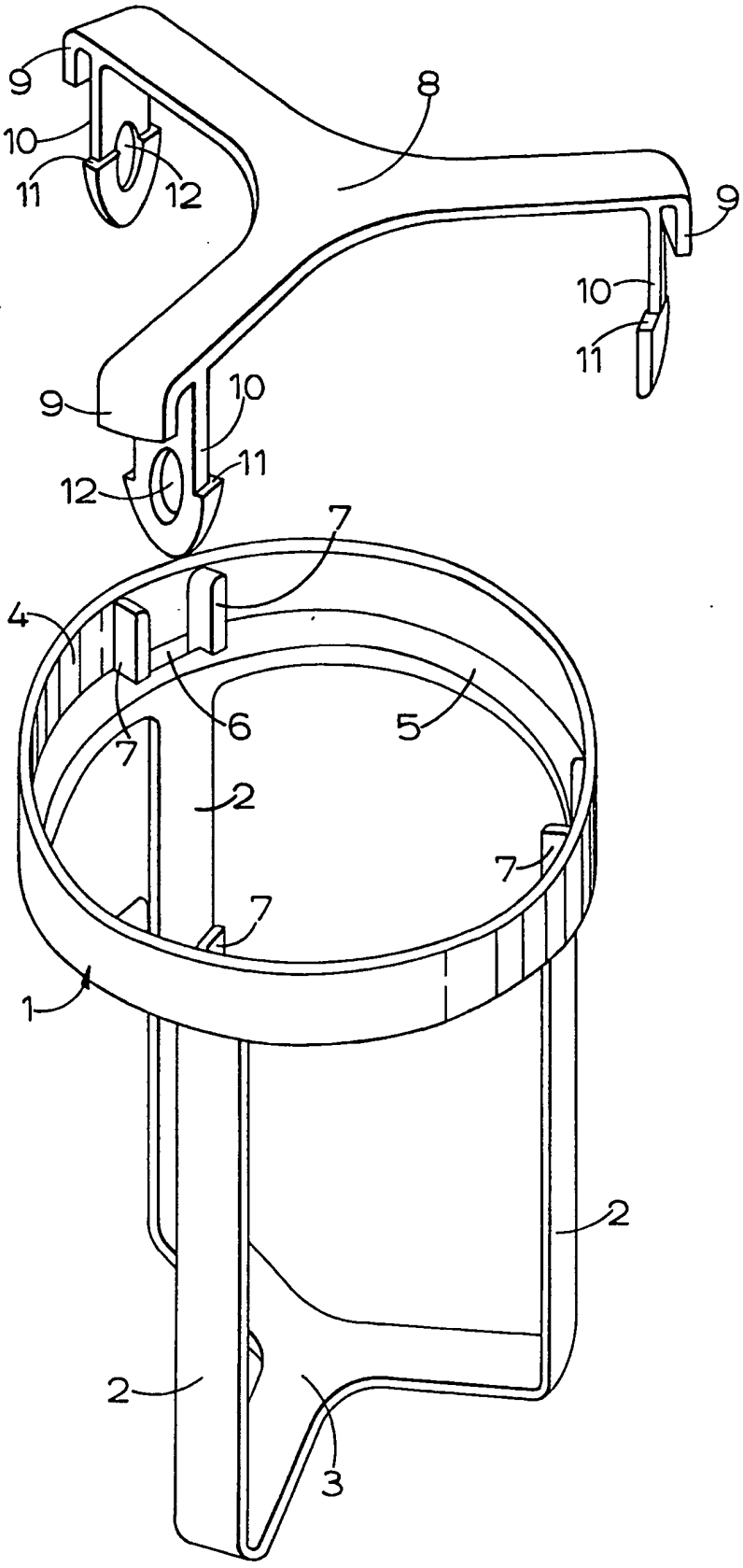


FIG.1.

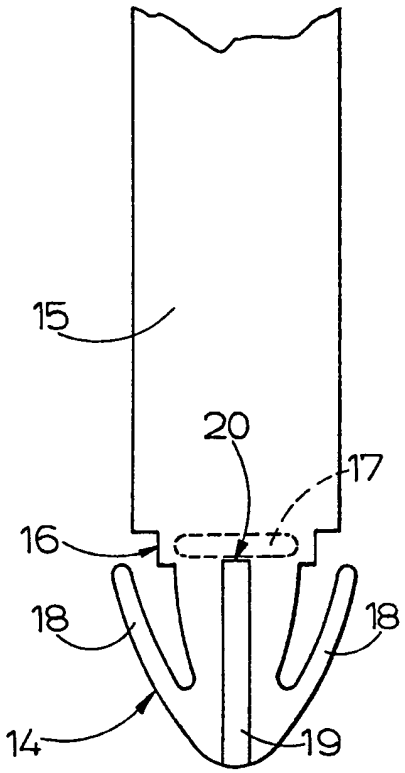


FIG. 2

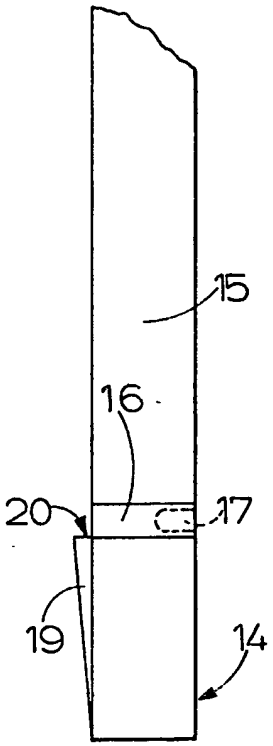


FIG. 3.

SPECIFICATION

**Tamperproof enclosures**

It is well known to provide containers for products such as pills and foodstuffs with tamperproof caps, for example requiring a seal to be broken before the cap can be removed. One widely used form has a tear-off strip around the skirt of the cap, engaging under a bead on the neck of the container.

In some cases these caps do not perform their function perfectly as it is possible for a determined thief to remove and replace the cap using a thin knife-blade, without breaking the seal and without leaving any evidence of his tampering.

Sometimes products are supplied in containers without a tamperproof seal, but a change in marketing conditions or in the intended destination of the products may make it desirable subsequently to render them tamperproof.

The aim of the invention is to provide supplementary tamperproofing means.

The invention provides a tamperproof enclosure in the form of a cage for fitting onto a container, the cage comprising two parts which are provided with interengageable locking means for locking the two parts together, the arrangement being such that, once the locking means are engaged, the two parts of the cage cannot be separated without at least a substantial risk of breaking the locking means. In fact in the ideal case the arrangement will be such that the parts of the cage cannot be separated without breakage of the locking means being absolutely essential.

The use of a cage may permit the original get-up and marking of the container to be seen when the enclosure is fitted. Furthermore, the cage may be manufactured using a much smaller volume of material than would be required for say a complete container enclosing the same volume.

Such a cage can be fitted around an existing closed container, whether or not the latter already has a tamperproof cap. Breakage of the locking means provides a clear visual indication that an attempt has been made to tamper with the container.

Preferably the locking means includes a portion, preferably of arrowhead-like shape, which is designed to deform as the two parts of the cage are brought into engagement, and then snap into position to lock the two parts together. Such a snap engagement can be made very difficult to reverse once it has taken place.

Preferably both parts of the case are moulded in a synthetic resin which, at least in the region of the locking means, is sufficiently yielding to allow the parts to be snapped together on assembly, but brittle enough to break inevitably when an attempt is made to separate them. A suitable material is a medium-impact polystyrene. The material is preferably of a colour other than white so that the occurrence of tampering which does not result in breakage of the locking means may nevertheless be revealed by a characteristic whitening of the stressed area.

An embodiment of the invention will now be described by way of example only, with reference to the accompanying drawings, in which

*Figure 1* is a perspective view of the two parts of the enclosure before they are assembled together,

*Figure 2* is a rear view of a modified form of detent which may be used with the enclosure, and

*Figure 3* is a side view of the modified detent.

The enclosure is designed to be fitted around a plain cyindrical container (not shown) having a snap-on cap, of a kind widely used for holding medical pills. The enclosure is in two parts–an upper cap portion and a lower body portion, as shown. Each portion is in the form of a one-piece moulding in medium impact polystyrene.

The body portion comprises a collar 1 joined by three equally spaced axial legs 2 to a three-armed base 3. The collar 1 comprises a cylindrical part 4 joined at its lower end to a radially inwardly extending annular flange 5, the legs 2 being joined to the inner edge of this flange. There are three rectangular holes 6 in the flange 5, next to the cylindrical part 4 and in radial alignment with the legs 2. Each hole is flanged on both sides by axial projections 7 joined to the cylindrical part 4. The upper inside corners of these projections are rounded, as shown.

The other portion of the enclosure comprises a three-armed top 8, with the free end of each arm carrying a downturned lug 9 and a locking detent 10. Each detent 10 is spaced radially inwards from the lug 9 by the wall thickness of the cylindrical part 4 of the base portion. Each detent 10 comprises a head portion of arrowhead-like shape with a rounded tip, and a shank portion. The shank is flush with the head on its outer face, but at its two sides and its inner face it is stepped back to form upwardly facing detent surfaces 11. A hole 12 through the detent introduces a certain amount of resilience between its sides in the region of the surfaces 11.

In use, the container to be tamperproofed is placed in the body portion of the enclosure and the cap is placed in position with the detents 10 in alignment with the holes 6. The two parts of the enclosure are forced together so that the detents are forced between the projections 7, aided by the rounded upper corners of the these projections, squeezing the sides of the arrowhead-like portion together. The projections 7 guide the heads through the

holes 6 whereupon they snap into place with the detent surfaces 11 engaging the underside of the collar 1, thus locking the two parts of the enclosure together. The lugs 9 fit over the cylindrical part of the collar 1. It is most unlikely that any amount of manipulation, even with a knife balde, will allow the parts of the enclosure to be separated without breaking one or both parts, thus providing a clear visual indication that the enclosure has been tampered with. An advantage of using medium-impact polystyrene is that, if it is coloured other than white, any bending which stresses the material beyond a certain point causes a tell-tale whitening of the stressed area so that even if the enclosure is not broken there is a permanent indication that it has been tampered with.

The modified detent shown in Figs. 2 and 3 again comprises an arrowhead-like portion 14 and a shank portion 15, but this time they are joined by an intermediate neck portion 16 designed to fit in the hole 6 with little clearance. There is a transverse indentation 17 in the outer face of the neck portion 16. The sides of the arowhead-like portion 14 are formed by two rearwardly extending resilient detent prongs 18 which can be squeezed together to enable the head to enter the hole 6. When the head passes through the hole, the prongs spring outwards so that their tips engage the underside of the collar 1. A wedge-shaped rib 19 on the inner face of the head 14 forms a further upwardly facing detent surface 20 which also engages the underside of the collar 1. Any attempt to withdraw the detent from the hole 6 causes the prongs to move apart until they eventually break off.

The detents could take other forms besides those illustrated, for example they may be of circular cross-section with annular or conical flanges.

The enclosure could have more than three legs, or it may be of mesh-like form. It could be designed to hold other shapes of container and in some cases it could be in three or more parts, all snapping together irreversibly.

## CLAIMS

1. A tamperproof enclosure in the form of a cage for fitting onto a container, the cage comprising two parts which are provided with interengagable locking means for locking the two parts together, the arrangement being such that, once the locking means are engaged, the two parts of the cage cannot be separated without at least a substantial risk of breaking the locking means.

2. An enclosure according to Claim 1, in which the locking means includes a portion which is designed to deform as the two parts of the cage are brought into engagement, and then snap into position to lock the two parts together.

3. An enclosure according to Claim 2, in which the portion which is designed to deform is of an arrowhead-like shape.

4. An enclosure according to Claim 3, in which the arrowhead-like portion has a hole in it to introduce resilience between its sides.

5. An enclosure according to Claim 3, in which the arrowhead-like shape is formed by two rearwardly extending prongs.

6. An enclosure according to Claim 3, 4, or 5, in which one part of the case is provided with a hole for reception of the arrowhead-like portion which is carried on the other part of the cage.

7. An enclosure according to Claim 6, in which the sides of the hole are flanged by projections designed to deform the arrowhead-like portion and guide it into the hole.

8. An enclosure according to any of Claims 3 to 7, in which the respective part of the cage is provided with a plurality of arrowhead-like portions, all spaced apart.

9. An enclosure according to any preceding claim, which is moulded in a synthetic resin.

10. An enclosure according to Claim 9, in which the enclosure is moulded in a synthetic resin of a colour other than white.

11. A tamperproof enclosure which is substantially as described with reference to and as shown in Fig. 1 of the accompanying drawings.

12. A tamperproof enclosure which is substantially as described with reference to and as shown in Figs. 2 and 3 of the accompanying drawings.

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